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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Andreas Johannes Gerrits

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BRIARCLIFF MANOR, NY 10510

EXAMINER

WOZNIAK, JAMES S

ART UNIT

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2626

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/047,032	Applicant(s) GERRITS, ANDREAS JOHANNES	
	Examiner JAMES S. WOZNAK	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 10/14/2009, the applicant has submitted a Request for Continued Examination (*RCE*), filed 1/14/2009, amending independent claims 1, 5, 9, 13 and 17, while arguing to traverse the art rejection based on the limitation regarding audio-based processing (*Amendment, Page 13*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.
2. Under the most recent 35 U.S.C. 101 guidelines, independent claims 5, 9, 13, and their associated dependent claims have been reconsidered and found to be directed to non-statutory subject matter. A rejection to this effect has been set forth below.

Response to Arguments

3. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to independent claims 1, 5, 9, 13, and 17, the applicants argue that the prior art of record fails to teach their claimed invention because Chai (*U.S. Patent: 6,137,915*) is directed to video coding and not audio coding as is required with the currently amended claims (*Amendment, Page 13*). In response the examiner, respectfully disagrees for at least two reasons.

First, while the applicants are correct in that Chai does teach a video encoding/decoding operation featuring error concealment based around high band reconstruction from low band signal portions (*Col. 4, Line 54- Col. 5, Line 9*), Chai alternatively features a mode for multi-band audio signal encoding/decoding (*Fig. 2, Elements 221, 222, 290*) and further describes that his system can operate in an audio-specific fashion (*"an encoder/packetizer 616 for...and/or audio signal"* and *"In the preferred embodiment the encoder/packetizer is simply...the audio encoder 222, Col. 8, Lines 17-38*). Chai further notes that his process of highband transmission error concealment at a decoder (*i.e., the general concept of highband reconstruction from a lowband signal*) is provided in connection with the audio-specific encoder (*"The decoder/depaketizer 676 is simply any decoders that are complementary to the encoder/packetizer 616 as discussed above for decoding the bitstreams generated by the encoder/packetizer 616 and for implementing the error concealment method as described above."*, *Col. 8, Lines 54-67*). Thus, Chai's invention does involve audio coding.

Second, Liljeryd et al (*WO 00/45378*) specifically recites reconstructing a second, missing highband audio signal portion from a first, lowband signal to restore missing second frequency band data using spectral band replication (*Page 8, Line 35- Col. 9, Line 10; and Fig. 6, Element 604*). Thus, the examiner further disagrees with the applicants' argument that Liljeryd fails to teach second frequency band information reconstruction from low band information for an audio signal at a decoder (*Amendment, Page 13*).

Therefore for at least the above reasons, this argument with respect to the independent claims has been fully considered, but is not convincing.

With respect to dependent Claim 3, the applicant argues that Zinser (*U.S. Patent: 5,384,793*) fails to teach that adjacent energies would be from the current frame of a decoded frequency band signal different from the decoded frequency band signal which is being reconstructed (*Amendment, Page 14*). In response, the examiner notes that Zinser's error correction process takes place at a decoder and relies on a corresponding signal portion from a previous frame (*i.e., "corresponding" meaning reconstruction of a current highband signal from a previous highband signal in the case of Chai or Liljeryd*) and an adjacent signal portion from a current frame (*i.e., not the same, but bordering signal meaning reconstruction of a current highband signal from a current lowband signal in the case of Chai or Liljeryd*) (*Col. 3, Lines 8-16*). Zinser's "adjacent" signal in the present frame is not the "value" being reconstructed/recovered or the "corresponding" value, thus, this argument has been fully considered, but is not convincing.

The art rejections of the remainder of the dependent claims (and further arguments directed towards claim 3) are traversed for reasons similar to the independent claims (*Amendment, Pages 14-15*). In regards to such arguments, see the response directed towards the independent claims.

Specification

4. The disclosure is objected to because of the following informalities:

On page 9 of the specification element 60 is referred to as the "speech coder", whereas based on Figures 1 and 2, it should actually be referred to as the --speech decoder--.

Appropriate correction is required.

Claim Objections

5. **Claims 1-4** are objected to because of the following informalities: Claim 1 recites various steps/elements "arranged for" (*i.e., an audio transmitter*) performing certain functions. It is not certain whether these functions are part of the claim because they are not positively recited only "arranged for" performing them. These functions will be considered as being actively performed for the application of the prior art of record.

Further dependent claims 2-4 fail to overcome the objection directed towards independent claim 1, and thus, are objected to by virtue of their dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. **Claims 5-8** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Although **claim(s) 5 and its associated dependent claims** appear to fall within a statutory category (*i.e., apparatus*), these claim(s) encompass nothing more than logic/software modules as per the specification (*entire speech decoder, 60, can encompass nothing more than*

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software, Page 9). Thus, claim(s) 5-8 are directed to non-statutory subject matter because their scope includes a computer program embodiment, an abstract data structure which does not fall within one of the four statutory categories (*i.e., it is directed to a program per se*). See also MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-2, 4-6, 8-10, 12-14, 16-18, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chai (*U.S. Patent: 6,137,915*) in view of the Applicant's admitted prior art (*hereinafter, "AAPA"*) and further in view of Liljeryd et al (*WO 00/45378*).

Regarding **claims 1, 5, 9, 13, and 17**, Chai discloses an apparatus and method for error concealment for hierarchical subband coding and decoding. Chai's system includes the following:

An audio transmitter for transmitting an input signal to a audio receiver via a transmission channel (Fig. 2, item 250; col. 4, lines 14-22),

the transmitter comprising a means for decomposing an input audio signal into frequency band signals (Fig. 2, items 221 (1-n) , 222 (1-n); col. 3, lines 28-35, lines 53-64; Col. 8, Lines 25-67),

the transmitter further comprising a first encoder for encoding the first frequency band signal into a first encoded frequency band signal and a second encoder for encoding the second frequency band signal into a second encoded frequency band signal (Fig. 2, abstract, subband coding; col. 3, lines 28-33, lines 53-64; Col. 8, Lines 25-67),

the audio transmitter being arranged for transmitting the first and second encoded frequency band signals via the transmission channel to the audio receiver (Fig. 2, items 240 and 245),

the receiver comprising a first decoder for decoding the first encoded frequency band signal into a first decoded frequency band signal and a second decoder for decoding the second encoded frequency band signal into a second decoded frequency band signal (Fig. 2, items 260, and 290; col. 4, lines 14-21, elementary streams; Col. 8, Lines 25-67),

the receiver further comprising a means for providing a single output signal from decoded subband signals into an output signal (Fig. 2, items 290, 295; col. 4, lines 14-22; Col. 8, Lines 25-67),

the receiver further comprising reconstruction means for reconstructing the second decoded frequency band signal when the second decoded frequency band signal is not available, characterized in that the reconstruction means are arranged for reconstructing the second decoded frequency band signal from the first decoded frequency band signal (Fig. 5, col. 4, lines 30-42; col. 5, lines 9-27; corrupted subband HH2 can be concealed by using uncorrupted coefficients ... from other subbands LH2 and HL2; Col. 8, Lines 25-67).

Although Chai teaches the concept of error recovery using other frequency band signals and teaches the concept of subband coding/decoding, Chai does not explicitly teach the use of a splitter for splitting the input signal into bands and a combiner for merging the bands to produce a single output. Such coding pre/post processing means are well-known in the coding art as is evidenced by the AAPA. In the AAPA, it is stated that the structure of Fig. 1 is "known" and "prior art" (*Specification, Pages 2 and 5*). Fig. 1 shows that a splitter is used to divide an input

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signal into frequency bands that are provided to multiple encoders at a transmitter (items 20, 22, and 24). Fig. 1 also shows that a combiner is used to combine frequency bands from first and second decoders to provide a single output at a receiver (items 26, 28, and 30). The descriptions associated with Fig. 1 further describe this well-known processing (Page 5, Line 22- Page 6, Line 14).

Chai and the AAPA are analogous art because they are from a similar field of endeavor in multi-band coding systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Chai with the well-known splitter/combiner structures taught by the AAPA in order to provide a well-known and readily available means for splitting a signal into bands and combining those bands to produce an output signal, wherein, advantageously, only a low band signal is necessary for proper decoding (*Page 2, Lines 31-34; and Page 5, Line 22- Page 16, Line 14*).

Although Chai in view of the APAA teaches a concept of error recovery using other frequency band signal and the concept of subband coding/decoding enabled via a band splitter, Chai in view of the APAA do not explicitly recite a delay element that delays either the first or second frequency band signal during decoding. Liljeryd, however, recites such a delay unit for use in a decoder that delays one of the frequency bands during a decoding process (*Page 8, Line 35- Page 9, Line 10; and Fig. 6, Element 605*). Liljeryd further recites reconstructing a second, missing highband audio signal portion from a first, lowband signal to restore missing second frequency band data using spectral band replication (*Page 8, Line 35- Col. 9, Line 10; and Fig. 6, Element 604*).

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Chai, the AAPA, and Liljeryd are analogous art because they are from a similar field of endeavor in multi-band coding systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Chai in view of the AAPA with the delay unit taught by Liljeryd in order to compensate for the processing time of decoding a high band signal so that a proper wideband audio output can be obtained (*Liljeryd, Page 9, Lines 8-10*).

Regarding **claims 2, 6, 10, 14, and 18** Chai teaches everything claimed, as applied above (see claim 1). In addition, Chai teaches "that the reconstruction means are arranged for reconstructing the second decoded frequency band signal from the first decoded frequency band signal by extending a bandwidth of the first decoded frequency band signal" (col. 5, lines 20-25; corrupted HH2 can be concealed by using uncorrupted coefficients ... from subbands LH2 and HL2 [extending the bandwidth]; Col. 8, Lines 25-67).

Regarding **claims 4, 8, 12, 16, and 20**, Chai teaches everything claimed, as applied above (see claim 1). In addition, Chai teaches "the first frequency band signal and the first encoded frequency band signal and the first decoded frequency band signal are signals having a low frequency band and in that the second frequency band signal and the second encoded frequency band signal and the second decoded frequency band signal are signals having a high frequency band" (Fig. 2, col. 3, lines 28-35; col. 4, lines 14-23, lines 31-42; e.g., LL is a low frequency band, HH is a high frequency band, etc; Col. 8, Lines 25-67).

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10. **Claims 3, 7, 11, 15, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chai (*U.S. Patent: 6,137,915*) in view of the Applicant's admitted prior art (*hereinafter, "AAPA"*) in view of Liljeryd et al and further in view of Zinser (*U.S. Patent: 5,384,793*).

Regarding **claims 3, 7, 11, 15, and 19**, Chai in view of the AAPA and further in view of Liljeryd teaches everything claimed, as applied above (see claim 1). As stated in the rejection of claim 1, Chai teaches that an adjacent subband can be used to repair a corrupted subband (col. 2, lines 9-27), but Chai does not specifically teach "that the reconstruction means are arranged for reconstructing a present frame of the second decoded frequency band signal from a present frame of the first decoded frequency band signal and from a previous frame of the second decoded frequency band signal." However, the examiner contends that this concept was well known in the art, as taught by Zinser.

In the same field of endeavor, Zinser discloses an error protection method for dynamic bit allocation sub-band coding. Zinser teaches that energies from the previous frame can be combined with energies from the adjacent energies in the current frame for synthetic regeneration (col. 3, lines 8-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chai in view of the AAPA and further in view of Liljeryd by specifically providing features, as taught by Zinser, because it is well known in the art at the time of invention for the purpose of obtaining a better estimate by interpolating with information time [previous] as well as frequency [adjacent subband].

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/James S. Wozniak/
Primary Examiner, Art Unit 2626